

I CLAIM

1. A method of minimizing buffer requirements in a packet based multimedia system having a multimedia source device coupled to a multimedia display device by way of a bi-directional auxiliary channel arranged to transfer information between the display device and the source device and vice versa and a unidirectional main link arranged to carry multimedia data packets from the multimedia source device to the multimedia display device, a method of reducing multimedia packet overhead, comprising:
 - prior to commencement of transmission of the data packets from the source device to the display device over the main link, communicating via the auxiliary channel data packet attributes to the display device;
 - forming a reduced size data packet header for each of the data packets wherein the reduced size is commensurate with the data packet attributes already communicated via the auxiliary channel and reduces buffer requirements;
 - associating the reduced size data packet header with a corresponding one of the data packets;
 - transmitting the data packet and associated reduced size data packet header from the source device to the display device over the main link; and
 - interspersing special characters that allow the display device to distinguish each bit of pixel data included in the data packets thereby requiring only a small FIFO type buffer unit.
2. A method as recited in claim 1, wherein the data packet is one of a number of associated multimedia data packets that take together form a multimedia data packet stream.

3. A method as recited in claim 2, wherein the multimedia data packet stream is one of a number of multimedia data packet streams each having an associated adjustable data stream link rate that is independent of a native stream rate.

4. A method as recited in claim 1, wherein the bi-directional auxiliary channel is formed of a uni-directional back channel configured to carry information from the sink device to the source device and a uni-directional forward channel included as part of the main channel for carrying information from the source device to the sink device in concert with the back channel.

5. A method as recited in claim 4, further comprising:
forming a number of virtual links each being associated with a particular one of the multi media data packet streams wherein each of said virtual links has an associated virtual link bandwidth and a virtual link rate.

6. A method as recited in claim 5, wherein a main link bandwidth is at least equal to an aggregate of the virtual link bandwidths.

7. An apparatus for minimizing buffer requirements in a packet based multimedia system having a multimedia source device coupled to a multimedia display device by way of a bi-directional auxiliary channel arranged to transfer information between the display device and the source device and vice versa and a unidirectional main link arranged to carry multimedia data packets from the multimedia source device to the multimedia display device, comprising:

means for communicating via the auxiliary channel data packet attributes to the display device prior to commencement of transmission of the data packets from the source device to the display device over the main link;

means for forming a reduced size data packet header for each of the data packets wherein the reduced size is commensurate with the data packet attributes already communicated via the auxiliary channel;

means for associating the reduced size data packet header with a corresponding one of the data packets;

means for transmitting the data packet and associated reduced size data packet header from the source device to the display device over the main link; and

means for interspersing special characters that allow the display device to distinguish each bit of pixel data included in the data packets thereby requiring only a small FIFO type buffer unit.

8. An apparatus as recited in claim 7, wherein the data packet is one of a number of associated multimedia data packets that take together form a multimedia data packet stream.

9. An apparatus as recited in claim 8, wherein the multimedia data packet stream is one of a number of multimedia data packet streams each having an associated adjustable data stream link rate that is independent of a native stream rate.

10. An apparatus as recited in claim 8, wherein the bi-directional auxiliary channel is formed of a uni-directional back channel configured to carry information from the sink device to the source device and a uni-directional forward channel

included as part of the main channel for carrying information from the source device to the sink device in concert with the back channel.

11. An apparatus as recited in claim 10, further comprising:

means for forming a number of virtual links each being associated with a particular one of the multi media data packet streams wherein each of said virtual links has an associated virtual link bandwidth and a virtual link rate.

12. An apparatus as recited in claim 11, wherein a main link bandwidth is at least equal to an aggregate of the virtual link bandwidths.

13. Computer program product for minimizing buffer requirements in a packet based multimedia system having a multimedia source device coupled to a multimedia display device by way of a bi-directional auxiliary channel arranged to transfer information between the display device and the source device and vice versa and a unidirectional main link arranged to carry multimedia data packets from the multimedia source device to the multimedia display device, comprising:

computer code for communicating via the auxiliary channel data packet attributes to the display device prior to commencement of transmission of the data packets from the source device to the display device over the main link;

computer code for forming a reduced size data packet header for each of the data packets wherein the reduced size is commensurate with the data packet attributes already communicated via the auxiliary channel;

computer code for associating the reduced size data packet header with a corresponding one of the data packets;

computer code for transmitting the data packet and associated reduced size data packet header from the source device to the display device over the main link;

computer code for interspersing special characters that allow the display device to distinguish each bit of pixel data included in the data packets thereby requiring only a small FIFO type buffer unit. and

computer readable medium for storing the computer code.

14. Computer program product as recited in claim 13, wherein the data packet is one of a number of associated multimedia data packets that take together form a multimedia data packet stream.

15. Computer program product as recited in claim 14, wherein the multimedia data packet stream is one of a number of multimedia data packet streams each having an associated adjustable data stream link rate that is independent of a native stream rate.

16. Computer program product as recited in claim 13, wherein the bi-directional auxiliary channel is formed of a uni-directional back channel configured to carry information from the sink device to the source device and a uni-directional forward channel included as part of the main channel for carrying information from the source device to the sink device in concert with the back channel.

17. Computer program product as recited in claim 16, further comprising:

forming a number of virtual links each being associated with a particular one of the multi media data packet streams wherein each of said virtual links has an associated virtual link bandwidth and a virtual link rate.

18. Computer program product as recited in claim 17, wherein a main link bandwidth is at least equal to an aggregate of the virtual link bandwidths.